

## KEYS TO THE FLORA OF FLORIDA - 17, *RUELLIA* (ACANTHACEAE)

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### ABSTRACT

*Ruellia* (Acanthaceae) is represented in Florida by 8 species. *Ruellia heteromorpha* and *R. succulenta* are endemic to the state, while *R. brittoniana* and *R. ciliatiflora* are introduced and naturalized. *Ruellia noctiflora* is rated as endangered. *Ruellia brittoniana* has been designated an "invasive" species and is rapidly spreading along Florida waterways. A nomenclatural justification is provided for use of *R. brittoniana*, rather than *R. tweediana*, as the correct name for the Mexican Petunia. Five species, elsewhere reported for the state, are here excluded. An amplified key is given to the Florida taxa.

**KEY WORDS:** *Ruellia*, Acanthaceae, Florida flora.

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The genus *Ruellia* (Acanthaceae) in eastern North America was well treated by M. L. Fernald (Rhodora 47: 1-38, 47-63, 69-90. 1945), and his documented record of collections, morphology, and range remains the basis for all later work.

*Ruellia* then became the subject of intense study -- in the field, the test garden, and the laboratory -- by Robert W. Long (USF). His insightful reports have gone far to bring understanding to the Florida species: transplant studies of *R. caroliniensis* and related taxa in South Florida (Amer. Jour. Bot. 51: 842-852. 1964); the first Florida report of *R. ciliatiflora* (Rhodora 68: 432-434. 1966); the misapplication of *R. humilis* (Bull. Torrey Bot. Club 95: 16-27. 1968); the polymorphic *R. caroliniensis* (J. Arnold Arbor. 51: 257-309. 1970); and the distribution

and genetic relationships of the very different (and endangered) *R. noctiflora* (Bull. Torrey Bot. Club 98: 16-21. 1971); among others.

Yet Long's untimely death in 1976 left still other issues unsettled. Perhaps the most regretted uncertainty centers on the variation observed in south peninsular Florida. Fernald (1945) believed herbarium materials justified recognition of two species endemic to southern peninsular Florida, *R. heteromorpha* and *R. succulenta*, while restricting *R. caroliniensis* and *R. ciliosa* to north Florida and the upper peninsula. Long (1964), after cultivation of plants from 25 Florida populations, interpreted the observed variation to represent only a single species, *R. caroliniensis*. But, following further opportunity to observe the Florida plants, Long (1970) partitioned the single species into two subspecies -- ssp. *caroliniensis* which he divided into var. *caroliniensis* and var. *succulenta*; and ssp. *ciliosa*, in turn divided into var. *ciliosa* and var. *heteromorpha*. D. C. Wasshausen (Castanea 63: 99-116. 1998), in a careful synopsis of southeastern species, accepted Long's analysis.

Other Florida authors have followed somewhat different pathways. Wunderlin & Hansen (2003) recognized *Ruellia caroliniensis* and *R. ciliosa* as distinct; they also recognized *R. succulenta* into which they merged *R. heteromorpha* without distinction. As indicated by the following key, the present author views the four taxa as worthy of specific recognition, returning to the interpretation of Fernald.

One species, *Ruellia brittoniana*, has become popular in garden and patio cultivation and is now known in diverse flower colors. What apparently is the original blue-violet flowered Mexican species has become extensively naturalized and invasive along Florida waterways to such an extent that effort is being made to find biological controls, a task made more difficult by the potential threat posed to a commercially valuable horticultural species.

The Mexican species has been known as *Ruellia brittoniana* Leonard since 1945 when its convoluted nomenclatural history was

fully elucidated (ca. 1800 words, including quotation of all relevant original sources) by Fernald (1945). In outline: Nees (1847) briefly described *Cryphiacanthus angustifolius*; he cited two collections, one by Galeotti from Jalapa, Mexico, the other by Tweedie from Entre Rios, Argentina. These collections have since been consistently interpreted as representing distinct species, leading Grisebach (1879) to rename the Argentine plant *Ruellia tweediana*, with a brief description. (In modern parlance, Grisebach followed the spirit of I.C.B.N., Art. 9A.5, in segregating one of the elements as another taxon, and thus by implication designated the "residue" as the lectotype of *C. angustifolius*.) Britton (1893), addressing the plants of Paraguay, in recognition that the original epithet, "*angustifolius*," was a later homonym in *Ruellia* (not *R. angustifolia* Sw., 1788) and thus unavailable and seemingly unaware of Grisebach's assignment of the name *R. tweediana*, again renamed the South American plant, as *Ruellia spectabilis*. Leonard (1941), noting that Nees's "*angustifolius*," as well as Britton's "*spectabilis*", had already been used in *Ruellia*, and needing a name for the Mexican plant, formed still another name, *Ruellia brittoniana*. Fernald (1945) then re-described the Mexican and Argentine plants in full (Latin) detail, and used *R. brittoniana* and *R. tweediana* as their names.

A recent statement (30 words) by Wunderlin (1998: 662) that the Florida plant should be known as *Ruellia tweediana* is incorrect. He noted that *R. tweediana* Griseb. predates *R. brittoniana* Leonard; it does indeed, but the first is the South American species, while the second is the related but clearly distinct North American taxon. He remarked *inter alia* that *R. brittoniana* is illegitimate since it is based on the same type as *R. tweediana*; it is not, for the two names are based on the two different specimens, treated together by Nees but segregated by Grisebach.

Though Fernald's descriptions are the first to establish a proper understanding of the morphology of these two species, the diagnoses by Nees and Grisebach, though scant, coupled with the unambiguous collections cited, are nomenclaturally sufficient to form legitimate names. The types on which the names are based have not been changed

(Art. 47.1), and the oft-used author citation, "Leonard ex Fernald," for *R. brittoniana* is inappropriate. [Though not a responsibility of Florida botanists, the present I.C.B.N. (Rec. 60C.1) indicates the Argentine plant, in honor of James Tweedie (1775-1862), is properly spelled *R. tweediana*.]

**RUELLIA L.**      Wild Petunias <sup>1</sup>

1. Cauline leaves linear to narrowly linear-lanceolate, to 25 cm. long and 2 cm. broad, sessile; inflorescence of elongate axillary peduncles; flowers 1-several, terminal; corollas 3-4 cm. long, blue-violet. Perennial herb, to 1 m. tall. Stream banks, pond margins. Rare in panhandle, frequent throughout peninsula. Spring-fall. **INVASIVE.** [*Ruellia coerulea*, misapplied; *Ruellia malacosperma*, misapplied; *Ruellia tweediana*, misapplied]

**MEXICAN PETUNIA. \* Ruellia brittoniana Leonard**

1. Cauline leaves broad, variously petiolate.
2. Leaves broadly ovate, the blades abruptly truncate at base, to 10 cm. long and 5 cm. broad, with petioles to 2 cm. long; inflorescence a terminal panicle, densely glandular-pubescent; corollas pale blue-violet, pubescent. Perennial herb, to 1 m. tall. Waste areas, margins of cultivated fields. Central and south peninsula (Hillsborough, Dade counties); rare. Spring-fall. [*Ruellia lorentziana* Griseb.]  
**\* Ruellia ciliatiflora Hook.**

2. Leaves, if ovate, with blades not abruptly truncate at base, and petioles under 1 cm. long; inflorescence not a terminal

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1. This paper is a continuation of a series begun in 1977. The "amplified key" format employed here is designed to present in compact form the basic morphological framework of a conventional dichotomous key, as well as data on habitat, range, and frequency. Amplified keys are being prepared for all genera of the Florida vascular flora; the present series is restricted to genera where a new combination is required or a special situation merits extended discussion.

panicle, not densely glandular-pubescent; corollas not pubescent.

3. Flowers terminating simple to sparingly branched elongate near-leafless axillary peduncles; corollas blue-purple, to 4 cm. long. Perennial herb, to 30 cm. tall. Bogs, seasonally wet pinelands. Central panhandle (Gadsden, Liberty, Washington counties); rare. Summer. [*Ruellia pedunculata* Torr. & Gray ssp. *pinetorum* (Fern.) R. Long] ***Ruellia pinetorum* Fern.**

3. Flowers subsessile or in short-peduncled glomerules, in axils of uppermost leaves.
4. Corollas white, 6-10 cm. long, opening at dusk. Perennial herb, to 50 cm. tall. Wet pinelands. Central panhandle (Jackson, Franklin, Wakulla counties), disjunct to northeast Florida (Clay, Duval, Nassau, St. Johns counties); rare. Summer. ENDANGERED (State listing)  
NIGHT-FLOWERING WILD PETUNIA.

***Ruellia noctiflora* (Nees) Gray**

4. Corollas lavender or bluish, sometimes with white lobes, 4-6 cm. long, opening in daytime.
5. Stems very short, usually under 10 cm. tall; leaves crowded, with narrowed bases and rounded tips, the veins white-villous. Perennial herb, to 10 cm. tall. Dry pinelands, sandhills. North Florida (s. in peninsula to Hernando, Lake counties); frequent in panhandle, infrequent southward. Summer-fall. Occasional plants with stems elongate, the leaves spatulate, remote, are apparent hybrids with *R. caroliniensis*. [*Ruellia humilis*, misapplied; *Ruellia caroliniensis* (Walt. ex Gmel.) Steud. ssp. *ciliosa* (Pursh) R. Long]  
DWARF WILD PETUNIA. ***Ruellia ciliosa* Pursh**

5. Stems normally elongate, above 20 cm. tall; leaves well-separated, ovate to elliptic with blunt to acute tips, usually with short but distinct petioles, the surfaces variously pubescent to glabrous, the veins not notably more so.

6. Plant glabrous or nearly so, upright, the leaves thick, somewhat fleshy, often purple-tinged. Perennial herb, to 30 cm. tall. Moist to dry soils, occasionally in rocklands. South peninsula (Collier, Dade, Monroe counties); infrequent. All year. Endemic. [*Ruellia caroliniensis* (Walt. ex Gmel.) Steud. var. *succulenta* (Small) R. Long]

***Ruellia succulenta* Small**

6. Plant variously pubescent, upright or with long-spreading lower stems, the leaves thin, full green.
7. Stems upright, either simple or with short lateral branches, sparingly pubescent. Perennial herb, to 80 cm. tall. Mesic hammocks, brushy margins. Throughout; common north and central, rare south. Spring-fall. [*Ruellia parviflora* (Nees) Britt.] COMMON WILD PETUNIA.

***Ruellia caroliniensis*  
(Walt. ex Gmel.) Steud.**

7. Stems in early season upright, in mid to late season forming long trailing horizontal branches from lower nodes, hirsute to villous. Perennial herb, to 40 cm. tall. Dry sandy soils, pinelands, occasional weed in plantings. South peninsula (n. to Lee, Brevard counties); frequent. All year. Endemic. [*Ruellia caroliniensis* (Walt. ex Gmel.) Steud. var. *heteromorpha* (Fern.) R. Long; *Ruellia hybrida*, misapplied]

***Ruellia heteromorpha* Fern.**

Excluded names:

***Ruellia humilis* Nutt.**

Northern. Reported for Florida by Small (1933), who had this plant confused with the coastal plain *R. ciliosa* (Long, 1970).

***Ruellia malacosperma* Greenm.**

Reported for Florida by Small (1933), apparently based on specimens of *R. brittoniana*. Cultivated in the state, but not known to escape.

**Ruellia nudiflora** (Gray) Urban

Western. Reported to occur in "pinelands," Dade County, by Lakela & Craighead (1965); omitted without comment by Long & Lakela (1971).

**Ruellia strepens** L.

Northern and western. Reported for Florida by Small (1933). No documenting specimens are known.

**Ruellia tuberosa** L.

An occasional weed in shadehouses, Dade County, but yet unknown outside.